



Nortel Networks i2004 Internet Telephone

A Voice over IP (VoIP) Solution

Delivering the reliability and ease-of-use of a traditional telephone with future-ready features made possible by voice and data convergence

Raising the bar of expectation for real-time business communications, the Nortel Networks* i2004 Internet Telephone combines the familiarity and ease-of-use of traditional business communications functionality with powerful new capabilities that capitalize on the values introduced by voice and data convergence at the desktop.

The i2004 represents the first in a series of new Internet telephones from Nortel Networks. This IP-based solution joins our full range of desktop devices including

full-featured traditional digital telephones and PC-based software clients — all designed to meet diverse customer needs and enrich person-to-person communications in a high performance Internet network.

Internet telephones directly connect to the LAN, allowing customers to capitalize on the economies of a simplified wiring system within the enterprise. With the i2004, operational efficiencies are delivered with accessories such as Nortel Networks Internet Telephone Switch Module, which allows a desktop PC and the i2004 to share a single Ethernet

connection to the desktop. Power over the LAN and reliable system backup are additional options available to maximize system performance throughout the network and meet customers' expectations for telephony availability and reliability.

The i2004 allows an enterprise to balance user requirements for high functionality with the benefits of streamlined management and reduced facilities costs. For instance the i2004 Internet Telephone offers a very flexible solution for handling station adds, moves, and changes by supporting dynamic IP addressing with a standard DHCP server.

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Users transitioning to new locations are able to move their i2004 set and reconnect to the network anywhere and anytime without administrative involvement, allowing system administrators to concentrate on more complex, mission-critical responsibilities.

The i2004 Internet Telephone provides a rich telephony feature set in addition to seamless operation with today's high value eBusiness communications services, including CallPilot* Unified Messaging and Symposium* Call Center services. The i2004 will evolve to include new value-added services, such as voice-activated dialing and corporate and personal directory services. Services provided on the i2004 can be customized to specific business needs using any of the open interfaces on Nortel Networks Succession* portfolio. Additional flexibility is also provided through the support of the following attributes:

- **Common across multiple platforms.** i2004 Internet Telephones are supported on multiple Nortel Networks Communication System platforms including customer-premise and carrier-based equipment allowing easy growth and migration. The unique characteristics provided by each platform enable the i2004 Internet Telephone to meet current and emerging user requirements with a suite of business features. In addition, the i2004 Internet Telephone is designed for global application with the support of international icon-based characters.
- **Shared Ethernet Connection.** The Internet Telephone Switch Module is a 10/100BASE-T, Layer 2 Ethernet switch that conveniently fits into the accessory bay of the i2004 footstand. The unit is designed to split one LAN

drop into separate feeds, providing an additional RJ-45 jack to accommodate a co-located desktop PC with the i2004 Internet Telephone. Implementing a hardware-based fixed priority scheme to the voice port, the Internet Telephone Switch Module delivers priority to voice traffic, ensuring high quality voice is always available.

- **Reliable LAN Power Options.** While other vendors integrate pre-standard power over LAN options, Nortel Networks has taken a modular approach for deploying a reliable power over LAN solution that will facilitate investment protection. The 24-Port Power over LAN Hub is designed to deliver power over the unused pairs of standard Category 5 LAN drops, employing a sophisticated software-based load and fault-sensing algorithm that provides power only to devices as required.

This solution fits in a standard 19" wiring closet rack and provides a cost-effective way to centralize power to Nortel Networks Internet phones. The Power over LAN Hub enables telecom-grade reliability and can be used with a UPS to ensure emergency backup power during power outages.

- **Standards-based.** The i2004 Internet Telephone in conjunction with a proxy server behaves like MGCP and H.323 devices. Nortel Networks actively participates in standards bodies to define solutions that will enable broad deployment of Internet phones in enterprise applications. The i2004 Internet Telephone is designed for flexibility, supporting firmware upgrades as standards and features evolve.

Features

A communications device must support such interpersonal communications as Calling Line Identification and voice messaging. These capabilities are accessible to end-users through an intuitive user interface: the familiar dial pad and feature keys. The i2004 Internet Telephone supports the following attributes:

- Large multi-field LCD display, including six user-programmable, self-labeling keys for direct access to lines or voice features
- Wideband-compatible speaker-phone (150 Hz to 7 kHz) with acoustic echo cancellation
- Integrated headset jack with convenient on/off button
- User-selectable ringer, speaker, handset, and headset volume
- Five special purpose service keys for access to commonly used applications and services
- Integrated accessory and expansion bay connectors to support future service enhancements
- Local generation of call alerting, call progress, dial pad tones, as well as support for out-of-band DTMF signaling to conserve valuable LAN/WAN bandwidth
- Dedicated Hold, Release, Hands-free, Headset, and Mute keys
- G.711, G.729A/B
- Wideband audio compression
- Voice activity detection, silence suppression, and comfort noise generation
- Integrated 10/100BASE-T auto-sensing Ethernet network interface (RJ-45)
- Automatic IP-address assignment via DHCP
- Upgradable via network-based download of additional functionality or codecs
- Hearing aid compatible

Technical Specifications

Table 1: i2004 Internet Telephone Technical Specifications.

i2004 Internet Telephone

Dimensions	6.5" W x 11.8" L x 5.3" H / 165 mm x 300 mm x 134 mm
Weight	2 lbs. / 900 g
Color	Ether Gray
Power	16V DC @ 500 mA provided by the supplied wall mount 110V / 240 V power supply
Operating temperature	40 °F to 104 °F / +5 °C to +40 °C
Relative humidity	5 to 95% (non-condensing)
Storage temperature	-40 °F to 158 °F / -40 °C to +70 °C

Internet Telephone Switch Module

AC Power Requirements	90-240VAC 50/60Hz through supplied AC adapter
DC Input	48V DC redundant power connector
Power Dissipation	5 Watts maximum, 4.5 Watts typical
Number of Ports	3 ports
Data Rate	10/100 Mbps autosensing
Standards	IEEE 802.3, 802.3u, 802.3x
MAC Address	Auto learning, auto aging at 700 seconds
Operating Conditions	0C to 40C
Hardware Priority	Fixed priority to phone port based on hardware
Layer 2 Priority	Packets are prioritized in the queue based on 802.1p bits.

Power over LAN Hub

AC Power Requirements	90-240VAC 50/60Hz commercial power
DC Input	-48V DC redundant power connector
Output Power	-48VDC 14 watts max per port, total output 192 watts
Power Feed	Common mode on pairs 4,5 & 7,8
Load Sensing	Automatic common mode sensing. Will not power up unused pairs unless a valid load is present
Fault Sensing	Automatic over/under load independent on each port
Mounting	19" rack mountable or stackable – 1.5 units high
Operating Temperature	0C to +50C

Certifications

E I/RFI	USA FCC Part 15, Class A Safety
	USA UL1950
	Canada CSA 22.2 No. 950-95
	AS/NZS 3260
	EU EN60950
	Global IEC 950

Technical Specifications

Table 1: i2004 Internet Telephone Technical Specifications.

Certifications (continued)

Network Protection

USA FCC Part 68
Canada IC CS03
CSA T510 M95
Australia/New Zealand AS3260
TPH1418
TS002
TS004
EU EN41003
TRB21
UK BS6301



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